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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/571,425

02/12/2007

Randolf Hugo

12810-00213-US1

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03/28/2008

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EXAMINER

BARTS, SAMUEL A

ART UNIT

PAPER NUMBER

1621

MAIL DATE

DELIVERY MODE

03/28/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/571,425	<b>Applicant(s)</b> HUGO ET AL.	
	<b>Examiner</b> Samuel A. Barts	<b>Art Unit</b> 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>02/12/2007</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 contains the phrase **“carrying out the hydrogenation in the absence or an organic solvent”**. The specification does not contain this phrase. Note that it is unclear whether this claim is an original claim or an amended claim. If the claim as presented is an original claim, then the language can be inserted in the specification to overcome this rejection. If the claim is an amended claim, applicant should clearly indicate this to be the case. The examiner does find that support for this phrase may exist in paragraph 30 which is given below:

***“For the hydrogenation of the phthalonitrile, it is also possible to add an organic solvent. When the hydrogenation is carried out in the presence of ammonia and an organic solvent, preference is given to first preparing the solution or suspension in the solvent.”***

This paragraph may suggest that the use of solvents in the hydrogenation step is optional.

Clarification or correction is required.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (EP 1 279 661 A1).

The instant claims are directed to a process of making ortho-, meta- or para-xylylenediamine, comprising the steps of:

a) ammoxidizing ortho-, meta- or para-xylene to o-phthalonitrile iso- or terephthalonitrile and

b) hydrogenating the phthalonitrile,

which comprises contacting the vaporous product of the ammoxidation stage directly with a liquid organic solvent, which has a lower boiling point than the phthalonitrile, or with molten phthalonitrile (quench); removing components having a boiling point lower than phthalonitrile (low boilers) from the resulting quench solution or suspension or phthalonitrile melt, before the hydrogenation of the phthalonitrile; not removing any products having a boiling point higher than phthalonitrile (high boilers) and carrying out the hydrogenation in the absence of an organic solvent.

The prior art of Nakamura teaches a process of making ortho-, meta- or para-xylylenediamine, comprising the steps of:

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a) ammoxidizing ortho-, meta- or para-xylene to o-phthalonitrile iso- or terephthalonitrile and

b) hydrogenating the phthalonitrile,

which comprises contacting the vaporous product of the ammoxidation stage directly with a liquid organic solvent<sup>1</sup>.

Nakamura further discloses the use of solvents such as tolunitrile<sup>2</sup> which meet the limitation of the claims of having a boiling point lower than phthalonitrile. The removed low boiler impurities of the instant claims would inherently be removed in the distillation step taught by Nakamura.

The instant claims differ from the prior art by; a) not removing the high boiler impurities prior to the hydrogenation step and b) not performing the hydrogenation step in the absence of a solvent.

With regards to the step of not removing the high boiler impurities prior to the hydrogenation step, the examiner contends that it would have been obvious to one having ordinary skill in the art at the time that applicant's invention was made to remove said high boilers after the hydrogenation step. A skilled artisan clearly would be motivated to make the final product as pure as possible. When and where the impurities are removed is one of an engineering choice well within the general skills of ordinary artisan.

With regards to the step of performing the hydrogenation step in the absence of a solvent, the examiners contends that this also would have been an obvious modification

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<sup>1</sup> See abstract for example.

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to the process disclosed by Nakamura. One having ordinary skill in the art looking at the invention of Nakamura would have had a reasonable expectation of success in performing the process in the absence of the solvent. Unless the solvent is deemed to be essential (as opposed to being desirable) a skilled artisan would reasonably expect the process to work with or without a solvent. As can be inferred by the statement given in the new matter rejection stated herein, performing this reaction in the presence or in the absence of solvents is not critical. A skilled artisan would be motivated to tweak a well known process by changing non-critical reaction conditions as a matter of choice depending on such factors as, cost, time and the desired yield.

Please note that the limitations of the dependent claims not explicitly addressed in the above rejection are deemed to be part of the routine work up of a process. Thus the limitations are deemed to be obvious and well within the skill of an ordinary artisan.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Barts whose telephone number is 571-272-2870. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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<sup>2</sup> See column 5 paragraph 24.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Samuel A Barts/  
Primary Examiner  
Art Unit 1621

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